

### **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions and listings of claims in the application:

#### **Listing of Claims:**

1. (currently amended) An optical test system for testing a device under test comprising:  
a fixture adapted to be attached with a device under test;  
an optical fiber held within said fixture and optically connected at its proximal end to a light source providing light, wherein said optical fiber is held by said fixture in optical alignment with said device under test; ~~and~~  
a focusing element optically coupled to said fiber, whereby said focusing element is configured to focus said light onto a photosensitive target on said device under test to cause latching of data into said device under test; and  
means for retrieving the latched data from said device under test.
2. (previously presented) The optical test system of claim 1 wherein said fixture acts as a heat sink for said device under test.
3. (original) The optical test system of claim 1 wherein said light source is a laser.
4. (previously presented) The optical test system of claim 1 wherein said focusing element is a computer-generated holographic optical element (CG-HOE).
5. (previously presented) The optical test system of claim 1 wherein said focusing element is a zone-plate.
6. (previously presented) The optical test system of claim 1 wherein said focusing element is a lens.
7. (previously presented) The optical test system of claim 1 further comprising one or more lenses located in combination with said focusing element to focus said light onto a photosensitive target on said device under test.
8. (currently amended) A method of testing a device under test having an operating integrated circuit comprising the acts of:  
obtaining a fixture defining a hole;

inserting an optical fiber into the hole defined in said fixture;  
applying light from a light source to a proximal end of said fiber; ~~and~~  
focusing said light as it exits a distal end of said fiber onto a photosensitive element of  
said integrated circuit thereby to cause latching of data into said integrated circuit; and  
reading the latched data from said integrated circuit.

9. (original) The method of claim 8 further comprising the act of capturing light at a  
proximal end of said fiber reflected by said element.

10. (original) The method of claim 8 where said fixture performs the function of a heat  
sink for said device under test.

11. (previously presented) A method of testing a device under test having an operating  
integrated circuit on a fixture comprising the acts of:

inserting an optical fiber into a hole defined in said fixture;  
applying light from a light source to a proximal end of said fiber;  
focusing said light as it exits a distal end of said fiber onto a photosensitive element of  
said integrated circuit thereby to cause latching of data into said integrated circuit;  
capturing light at a proximal end of said fiber reflected by said element; and  
analyzing said reflected light for proper focusing of said light onto said element.

12. (previously presented) A method of testing a device under test having an operating  
integrated circuit on a fixture comprising the acts of:

inserting an optical fiber into a hole defined in said fixture;  
applying light from a light source to a proximal end of said fiber;  
focusing said light as it exits a distal end of said fiber onto a photosensitive element of  
said integrated circuit thereby to cause latching of data into said integrated circuit;  
capturing light at a proximal end of said fiber reflected by said element; and  
analyzing said reflected light to determine whether said light is correctly coupled into  
said fiber.

13. (currently amended) An optical test system comprising:  
a fixture adapted to support the optical test system of an integrated circuit under test, the  
fixture housing a tube;

an optical fiber ~~housed within~~ held securely by said tube and optically connected at its proximal end to a light source;

a first lens located at a distal end of said tube thereby collimating a beam of light from said fiber; and

a second lens aligned with said first lens, wherein said second lens focuses said light onto said integrated circuit.

14. (original) The optical test system of claim 13 wherein said first lens is a collimating lens.

15. (original) The optical test system of claim 13 wherein said second lens is an immersion lens.

16. (currently amended) An electrical article of manufacture comprising:  
a semiconductor substrate having a proximal surface and a distal surface;  
one or more interconnecting contacts and associated photosensitive elements on said distal surface of said substrate, said photosensitive elements configured to cause test data to be captured upon excitation of said photosensitive elements by light;

one or more optical focusing elements in optical communication with said proximal surface of said substrate and each in alignment with one of said photosensitive elements;

a fixture in engagement with said optical focusing elements; and  
whereby light is directed from said one or more optical focusing elements to said ~~photoresistive~~ photosensitive elements ~~to capture test data.~~

17. (previously presented) The electrical article of manufacture of claim 16 wherein said optical focusing element is a CG-HOE.

18. (previously presented) The electrical article of manufacture of claim 16 wherein said optical focusing element is a zone-plate.

19. (previously presented) The electrical article of manufacture of claim 16 wherein said optical focusing element is a lens.

20. (previously presented) The optical test system of claim 1 wherein said device under test comprises an integrated circuit.

21. (currently amended) A method of testing a device under test comprising the acts of:  
obtaining at least one optical element supported by a fixture;

obtaining at least one integrated circuit having at least one photosensitive element coupled with a storage element, the at least one photosensitive element also being coupled with a circuit node;

aligning the at least one optical element with the at least one integrated circuit; ~~and~~

applying light to the at least one optical element to direct the light onto the photosensitive element of the integrated circuit, the operation of applying light to the at least one optical element causing the storage of an electrical state of the circuit node in the storage element; and  
reading the stored electrical state of the circuit node from the storage element.